

# PATENT COOPERATION TREATY

## PCT

### INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/FR 00/01461	International filing date (day/month/year)	Priority date (day/month/year)
International Patent Classification (IPC) or national classification and IPC		
Applicant		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of \_\_\_\_\_ sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 5 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of the invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability: citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☒ Certain defects in the international application
- VIII ☒ Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/	Authorized officer
Facsimile No.	Telephone No.

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims	1-10	YES
	Claims		NO
Inventive step (IS)	Claims	1-10	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-10	YES
	Claims		NO

**2. Citations and explanations****Novelty and inventive step**

Reference is made to the following documents:

D1: WO-A-98 47856

D2: US-A-5 550 160

D3: FR-A-2 731 831

D4: GB-A-1 193 956

D5: EP-A-0 436 579

D6: WO-A-95 27681

**Claim 1** relates to a method for separating actinides and/or lanthanides from one another by means of complexing and nanofiltration. The aim of the method is to enhance the simplicity, cost-effectiveness and performance of said separation in comparison with known methods, such as the ones using ion-exchange techniques, an example of which is given in document D4.

Except for document D4, none of the available documents relates to the separation of actinides and/or lanthanides from one another. In particular, documents D1, D2 and D5 describe rare earth chelates, in particular, lanthanides,

useful in therapeutic or diagnostic domains.

Document D3 describes a method for separating sodium from at least one radioactive element by means of a nanofiltration membrane. The rate of radioactive ion retention by the membrane can be enhanced by means of complexing using, for example, EDTA (Examples 7 and 16). This document does not describe separating actinides and/or lanthanides from one another or the separation thereof from other transition metals, in particular, the separation of UO<sub>2</sub> and Mn is not described.

There is nothing to suggest applying the teaching of document D3 to the method disclosed in document D4, even although the use of complexing agents such as EDTA and DTPA to chelate lanthanides and actinides is known.

It follows that the subject matter of **Claim 1** is novel and inventive (PCT Article 33(2) and 33(3)). The same is true of the subject matter of **Claims 2 to 8**, which are dependent on Claim 1.

The available prior art does not disclose or render obvious the complexing agents as per **Claim 9** and the use given in **Claim 10**.

**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

The description has not been brought into line with the amended claims.

## VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The claims do not fulfil the requirements of clarity and conciseness of PCT Article 6 for the following reasons:

The definition of nanofiltration on page 7, lines 21-28 of the description goes beyond the meaning generally attributed to this term, as used in Claim 1. Such a lack of consistency between the claims and the description leads to a lack of clarity of the claims.

Owing to the repetition of words such as "preferably", "preferentially" and "advantageously" in the claims, especially in Claim 1, the claims are not concise.